

GENERAL PLAN

WATER & WASTEWATER MANAGEMENT ELEMENT

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SAN LUIS OBISPO CITY COUNCIL

City of San Luis Obispo

General Plan

WATER & WASTEWATER MANAGEMENT ELEMENT

Mayor Pro Tem

Mayor

This element was adopted February 24, 1987, by City Council Resolution No. 6180A. The following amendments have been adopted:

<u>Subject</u>	<u>Resolution No.</u>	<u>Date</u>
Information, groundwater, waste-water section.	6351	October 26, 1987

Public Works

Public Works

Public Works

Public Works

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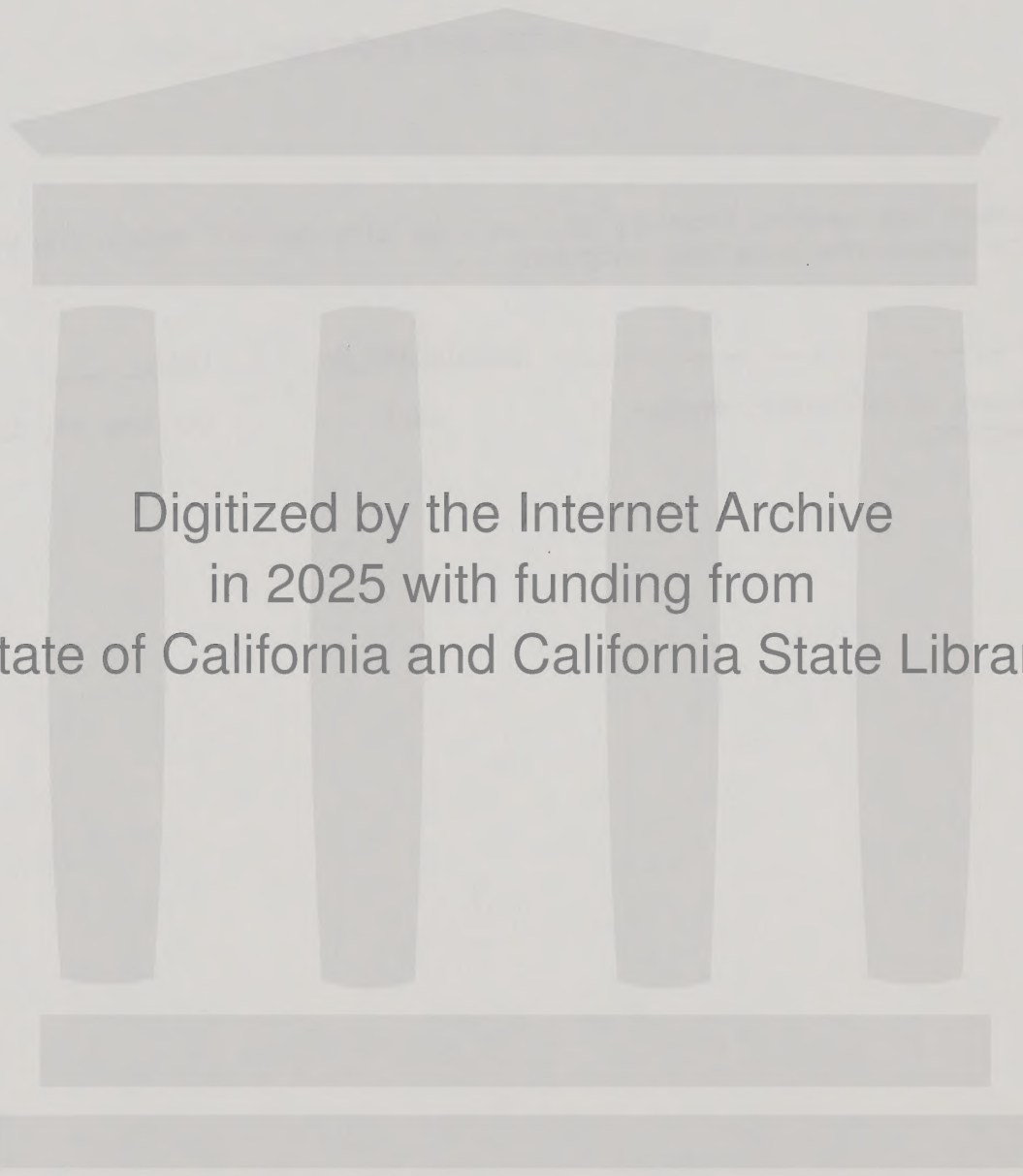
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INTRODUCTION

Purpose

The city's general plan guides the use and protection of various resources to meet community purposes. The general plan is published in separately adopted sections, called elements, which address various topics such as land use, housing, circulation, public safety, and parks.

The city decided to adopt an element addressing water resources and wastewater treatment because of the vital role of these resources and the far reaching impacts of water policies on community growth and character. This element outlines how the city plans to provide adequate water and wastewater services for its citizens, consistent with the goals and policies of other general plan elements.

This element is coordinated in particular with the Land Use, Open Space, Conservation, and Housing elements. The Land Use Element states the city's basic position on growth and designates appropriate uses for areas of the community, which this element translates into potential demand for water supply and wastewater treatment. The Housing Element describes development and maintenance of the housing supply and management of housing demand, which relate to water needs and the possible allocation of limited water resources. Both the Land Use Element and the Open Space Element provide for areas which should not be developed and therefore should not receive water or wastewater services for urban uses.

This element was adopted in February 1987 as the Water Management Element, and was amended in October 1987, to update information, make a minor revision to policies on use of groundwater, and to incorporate the wastewater section. The material on wastewater in this element replaces the Sewer Service Plan adopted in 1980.

The city intends to adopt separate documents (a Water Management Plan and a Wastewater Management Plan) as guides for funding and carrying out specific projects. The City Council decides to adopt regulations, proceed with projects, or change operations or rates for water and sewer service during public hearings on city budgets, capital facility programs, or other specific agenda items.

Public Participation

Before adopting or revising any general plan element, the Planning Commission and City Council must hold public hearings. The city publishes notices in the local newspaper to let citizens know about the hearings at least ten days before they are held. Also, the city prepares environmental documents to help citizens understand the expected consequences of its planning policies before the hearings are held.

Anyone may suggest or apply for amendments to general-plan elements. The city will probably update this element about every five years, or more frequently if necessary.

For More Information

For more current or more detailed information concerning the topics covered in this element, contact the Community Development Department at City Hall, 990 Palm Street, (P.O. Box 8100), San Luis Obispo, CA, 93403-8100; phone 805-549-7160.

WATER SECTION



Pipes from Whale Rock and Santa Margarita reservoirs meet here at the city's water treatment plant in Stenner Canyon, north of the Cal Poly campus.

INFORMATION

Background

An adequate supply of clean water is often taken for granted, though it is one of the basic needs for life and for an enjoyable community.

The community has been discussing the relationship between water and city growth and possible sources of additional water almost continually since the early 1970's, when the city began to more deliberately relate all types of resources to planning for future development. The discussion included the following major issues:

The desirability of continued urban growth and its effects on quality of life;

Appropriate growth rates and the desirable ultimate size for the city;

Water supply as a natural limit to urban growth;

The appropriateness of continuing current water-use patterns;

The best alternative sources of supplemental water to accommodate whatever growth was projected or desired;

The costs of supplemental water and who should bear the costs;

How great a risk the community should take in exceeding the estimated limits of its current water supplies, considering the severity of water-use restrictions that would be needed during a drought;

The amount and type of development that should be approved as the city approaches and exceeds the estimated capacity of its current water sources;

The reliability of water-use and water-supply estimates and projections.

Climate and Rainfall

Water use and supply are both closely tied to weather patterns. Water use rises when weather is hot and dry, while the city's supplies are simply rainfall captured in reservoirs. Therefore, supplies can be strained during prolonged droughts.

San Luis Obispo has a Mediterranean climate, averaging about 22 inches of rain per year. Annual rainfall, however, has ranged from seven to 56 inches per year in the last 115 years (Figure 1). Summers are warm and often foggy. Winters are cool, but rarely freezing, with rain coming mostly in December through February. Measurable rain rarely falls from June through September (Figure 2). The reliable yield of the city's reservoirs is determined by the driest six-year period on record, which was 1945 to 1951. During this interval, annual rainfall averaged 16 inches, about 73 percent of the 115-year annual average.

Water Use

The volume of water is often measured in acre-feet, the amount of water which would cover one acre to a depth of one foot, about 326,000 gallons. Often, and throughout this element, water use is measured in acre-feet per year. (City water customers are billed according to their usage in hundreds of cubic feet over a two-month period. One acre-foot contains about 436 hundred cubic feet.)

Figure 1
RAINFALL HISTORY

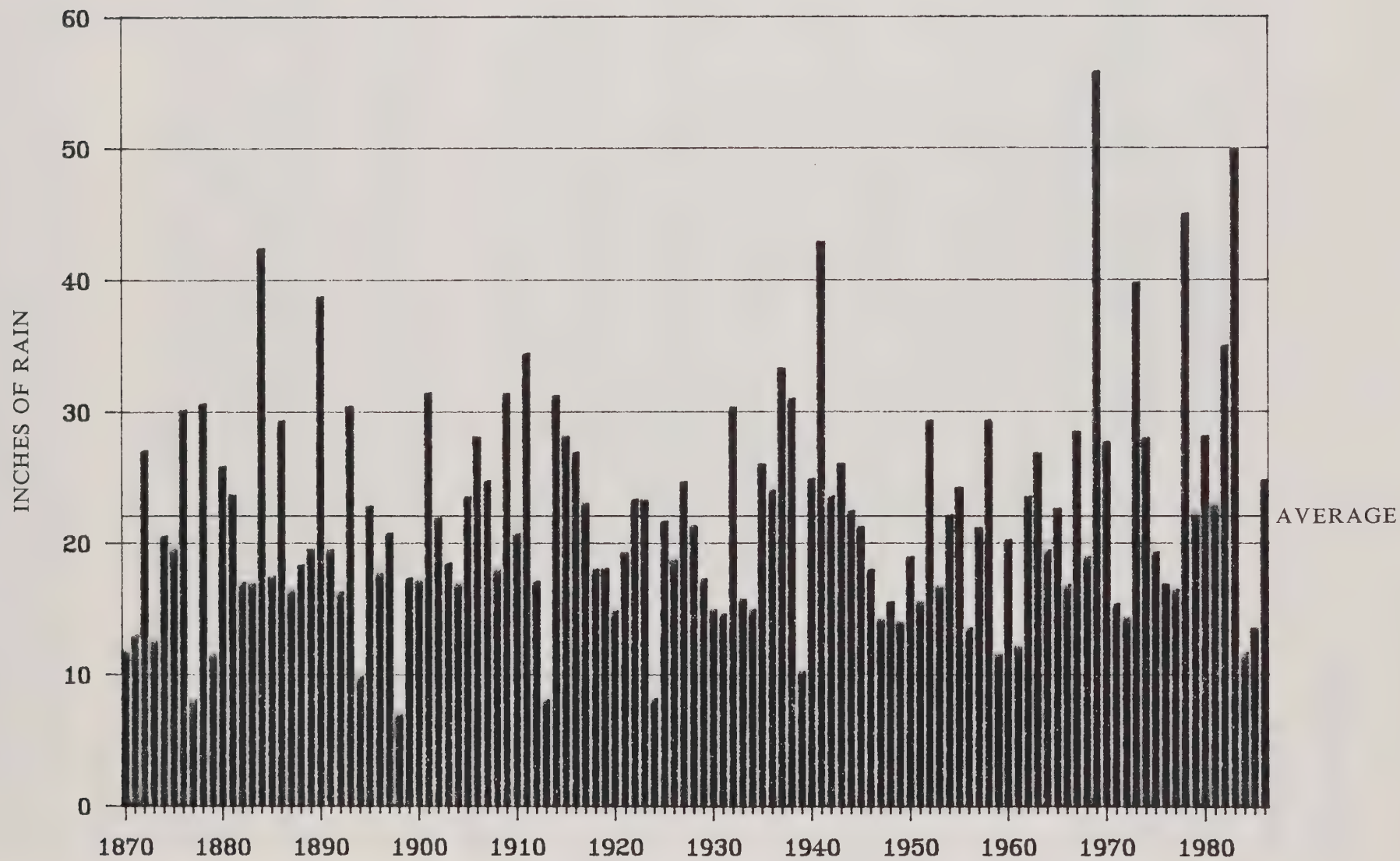
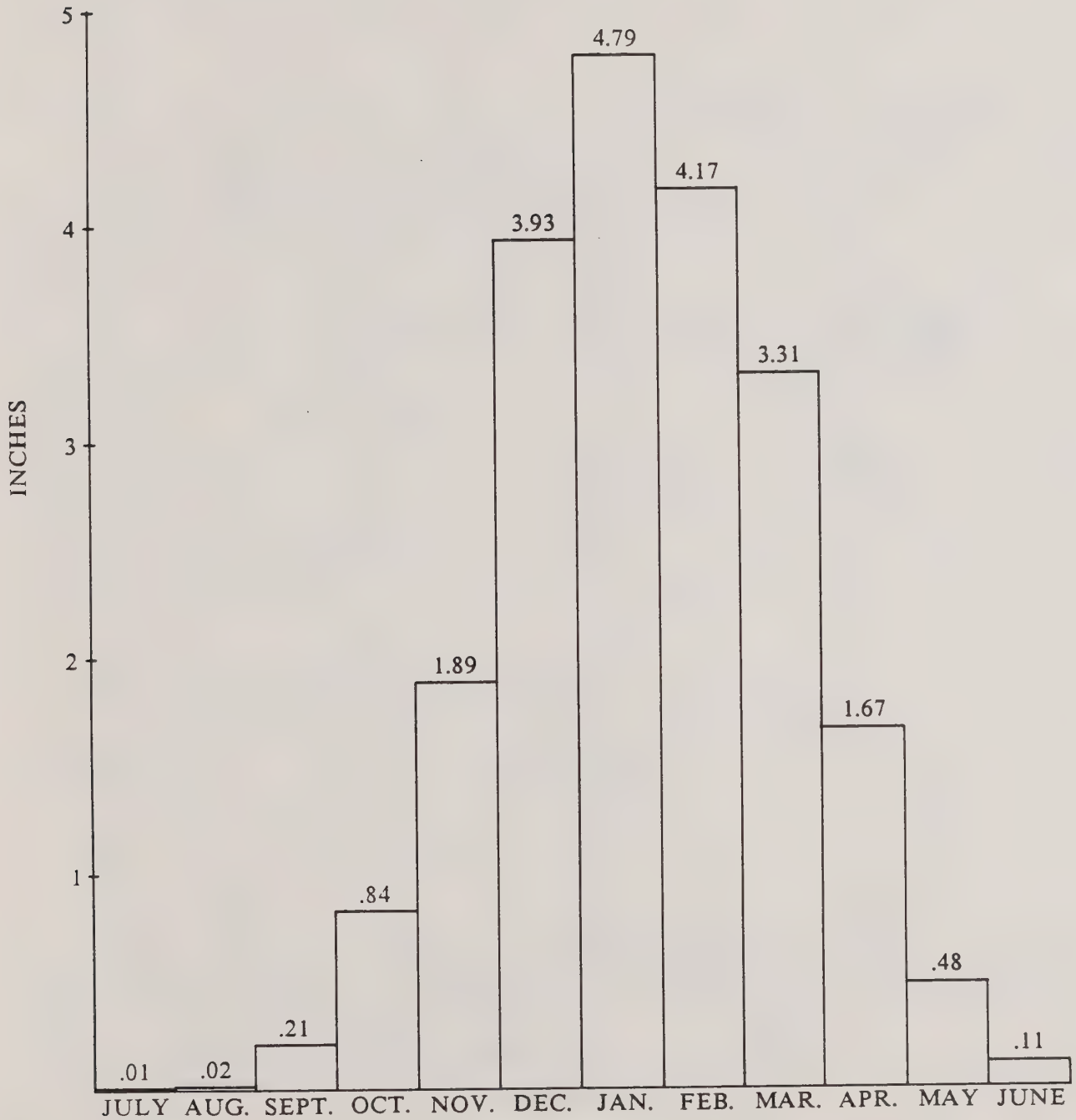


Figure 2

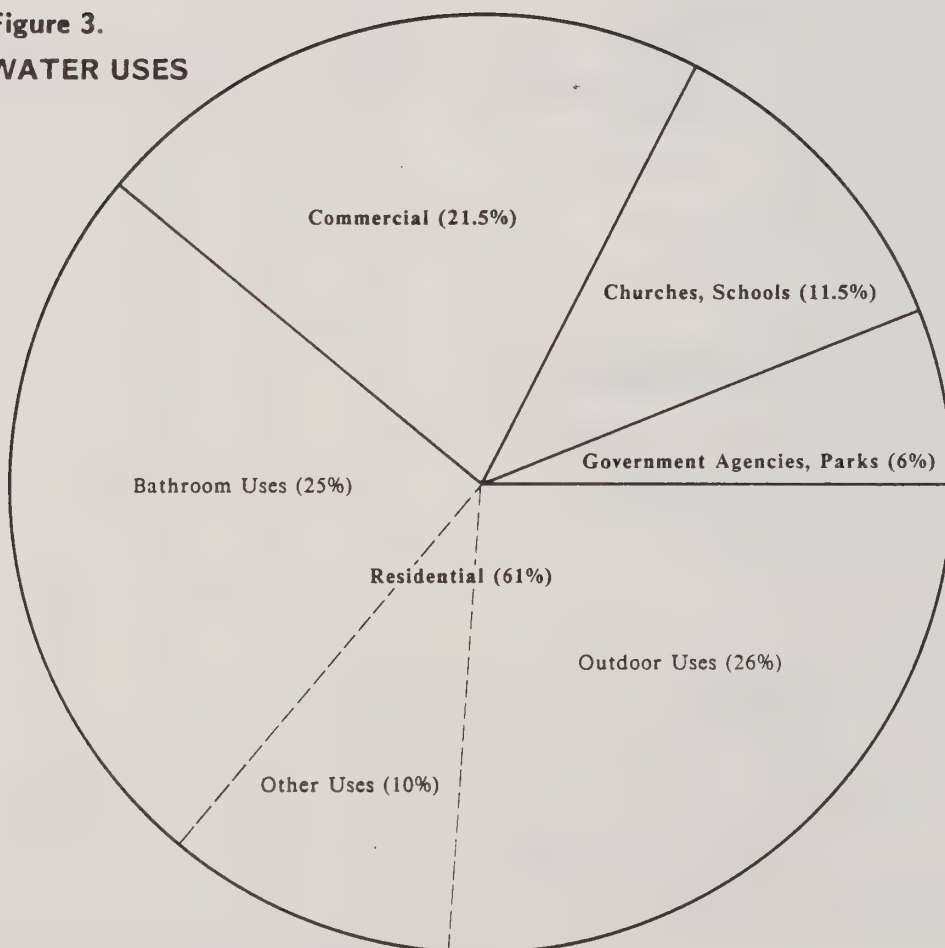
AVERAGE MONTHLY RAINFALL



Source: City of San Luis Obispo Public Works Department

In the city, water is used by households, businesses, and institutions for many purposes (Figure 3). Figure 4 shows annual water use.

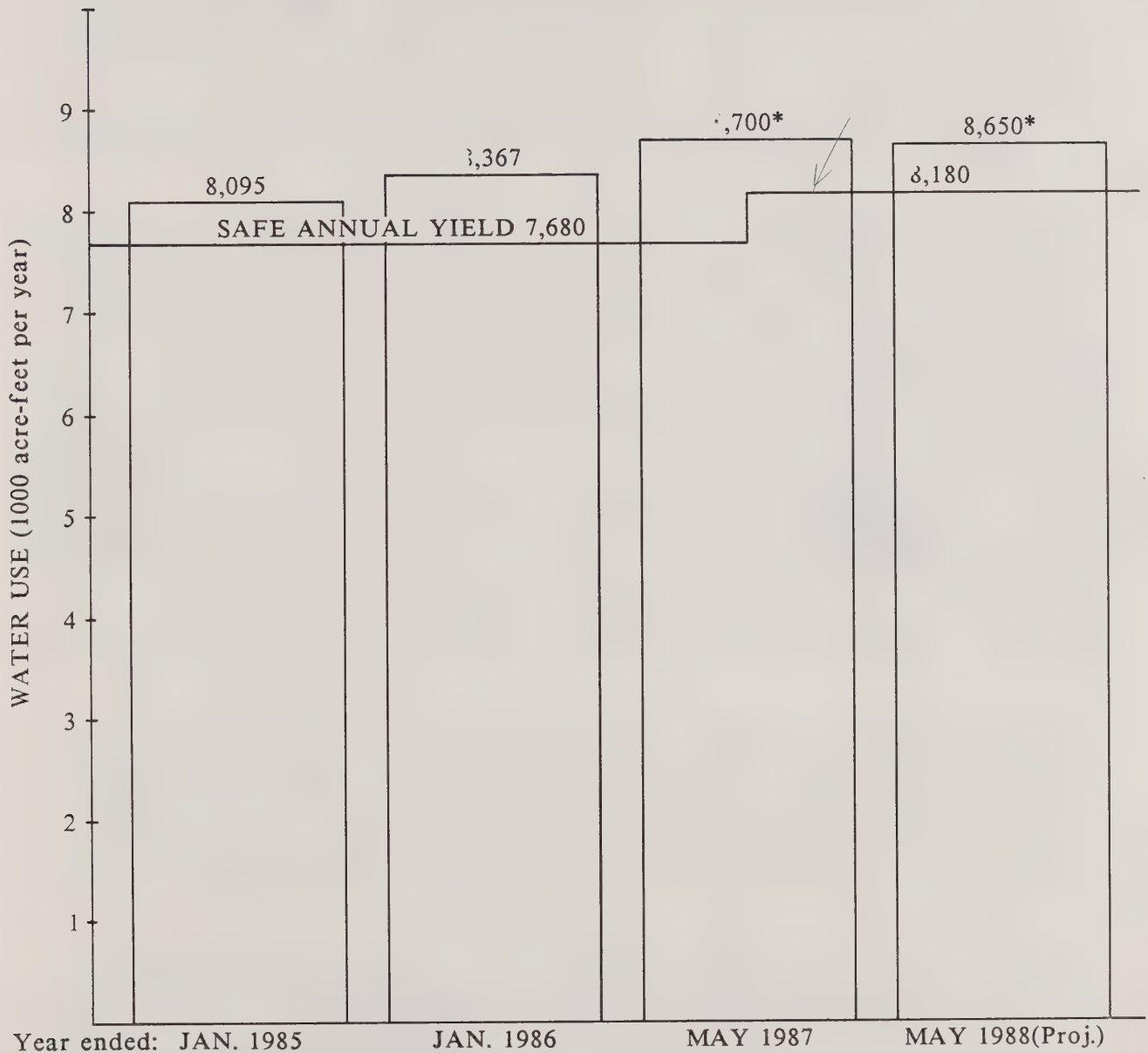
Figure 3.
WATER USES



Source: City of S.L.O. Citizens Advisory Committee, 1983

This chart shows metered water use, which accounts for about 91 percent of all water passing through the water treatment plant. All city water customers have meters. The remaining nine percent of total treated water is accounted for by fire fighting and hydrant testing, flushing impurities from water mains, water system leaks, and inaccurate meters.

Figure 4
CURRENT WATER USE

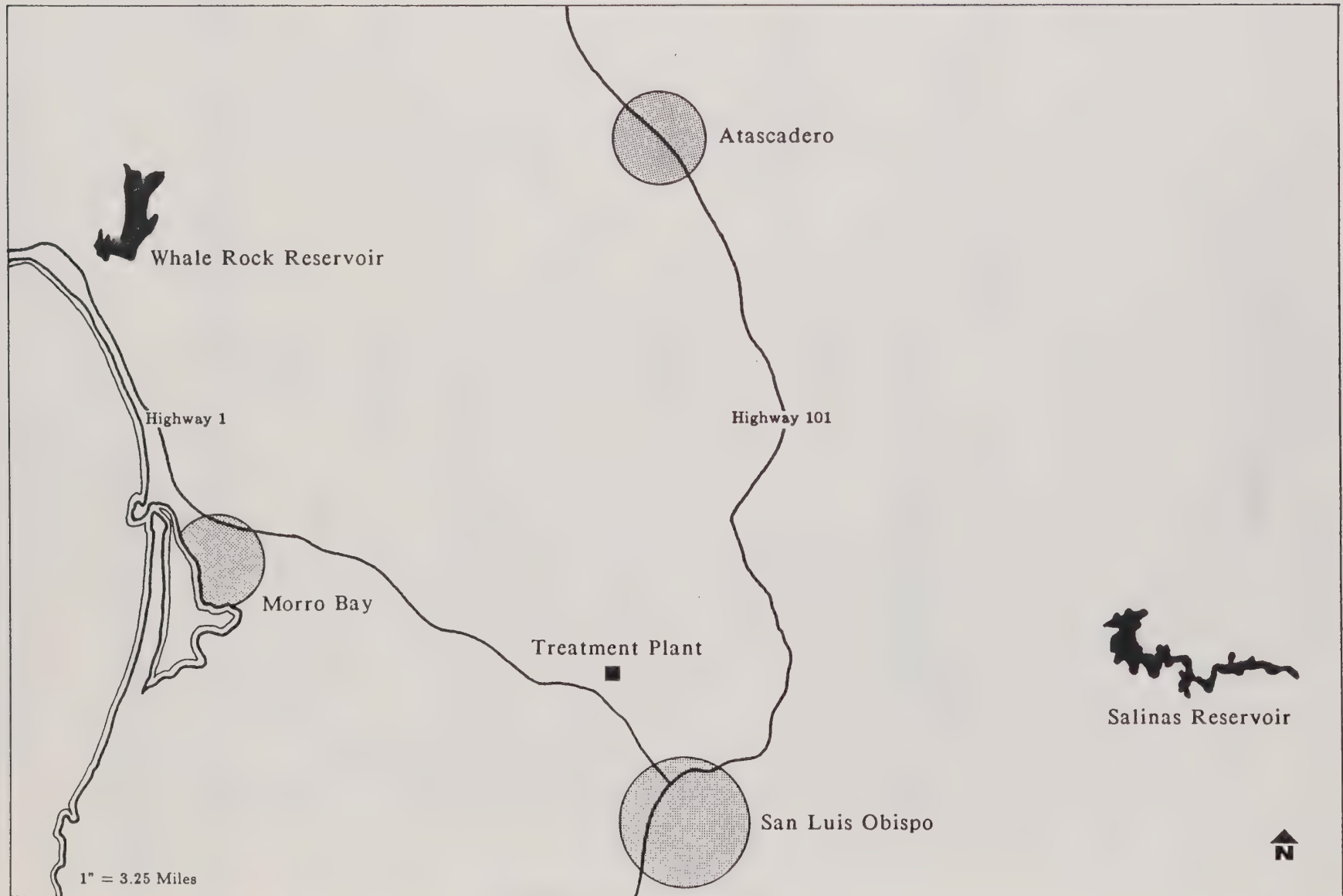


*Includes Cuesta College use of city water.

Source: City of San Luis Obispo Public Works Department

Figure 5
REGIONAL SETTING

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Existing Water Sources

San Luis Obispo gets its water from two lakes behind dams, one located 20 and the other 25 miles from the city (Figure 5). These reservoirs store creek runoff from rainfall on lands surrounding the lakes. Each reservoir can provide a certain maximum amount of water year after year without being drawn down to an unacceptably low level, considering the period of lowest recorded rainfall. This amount of water is called the safe annual yield. (Yield is measured in acre-feet per year.) For the city's reservoirs, safe annual yield is based on the driest six-year period experienced in the last 115 years.

The safe annual yield estimates for the reservoirs have been revised by water engineers since they were built, to reflect experience with rainfall, runoff, and build-up of silt, which reduces storage capacity.

Salinas Dam (Santa Margarita reservoir), which can store about 23,300 acre-feet, has a safe annual yield of 4,800 acre-feet per year. The city is entitled to all the water stored in this reservoir. However, water can be stored only after enough has been released to maintain certain water levels along the Salinas River downstream, to protect the rights of downstream users. The California Water Resources Control Board sets rules which govern flow and storage. This reservoir is owned by the U.S. Army Corps of Engineers and operated by the San Luis Obispo County Flood Control and Water Conservation District, which is governed by the county Board of Supervisors.

Whale Rock reservoir can store about 40,660 acre-feet. It has a safe annual yield of about 4,400 acre-feet per year. Of this, the city is entitled to 2,057 acre-feet per year. Also, the city treats water for Cal Poly, which is entitled to 823 acre-feet per year for uses other than irrigation. (Throughout this element, Cal Poly's entitlement and consumption are considered part of the city total since Cal Poly is a city water customer, even though the campus is not within the city limits. Cal Poly also uses some untreated Whale-Rock water for irrigation, which is not included in this element's figures.)

Whale Rock reservoir is owned jointly by the city and the state, which uses its allocation for Cal Poly and the Men's Colony prison. The Whale Rock Commission sets operating policy. This commission is comprised of city, Cal Poly, Men's Colony, and state Department of Water Resources representatives. City staff operate the dam. Enough water must be released from Whale Rock dam to provide for Cayucos' wells located just downstream from the dam. The Whale Rock Commission has sold surplus water to Cuesta College (about 100 acre-feet per year).

The safe yield figures are much smaller than the storage figures because during a drought a reservoir would not be full of water. Also, all the water in a lake is not fit to use, since it becomes warmer and more contaminated as it becomes shallower. The two reservoirs have very different storage and yield figures because Santa Margarita Reservoir, in comparison with Whale Rock, has a larger watershed (runoff collection area) in relation to the capacity of the lake. Also Santa Margarita water evaporates more quickly due to higher altitude and temperatures, and more wind.

The combined safe yield of the two reservoirs is about 500 acre-feet higher than the sum of their individual yields, because the city can draw first on Salinas (minimizing evaporation losses) and, under the 1987 "cooperative use agreement" with Whale Rock users, "bank" some water in Whale Rock reservoir for later use.

Silt is slowly filling both reservoirs. Engineers have estimated that this siltation reduces the combined safe annual yield of the reservoirs by roughly 25 acre-feet per year each year, so that by the year 2015 the yield will have been reduced by nearly 800 acre-feet.

The quality of water from the reservoirs is very good in comparison with many other municipal sources throughout the state.

In addition to the city water system, a few private wells and stream withdrawals are used for landscape irrigation. Also a water-bottling company uses a hillside spring and an ice company uses well water. During the 1940's and 1950's, the city stopped using creek supplies near Cuesta Grade and wells in and near the city, due to their small and less reliable yields and relatively poor water quality, in comparison with the reservoirs. The city is considering reactivating some of these sources.

Projected Water Requirements

Water demand is expressed as the number of acre-feet per year which the city should be prepared to deliver for all desired uses. Based on recent water-use measurements, the city assumes that water use will be 0.2 acre-foot per person per year. In other words, one acre-foot of water will meet the needs of five city residents plus all nonresidential uses (businesses, parks, and schools) if the relationship between resident population and other uses remains about the same as in recent years. Using these assumptions, and population projections derived from the Land Use Element, Figure 6 shows city water needs to the year 2015. This figure includes an allowance of up to 150 acre-feet per year for Cuesta College. It also reflects the additional water needed to compensate for gradually reduced yield of existing reservoirs due to siltation.

If San Luis Obispo grows as outlined in the Land Use Element, the city will need about 9,700 acre-feet per year (an increase of 2,000 acre-feet) by the mid 1990's. By the year 2015, it would need about 12,000 acre-feet per year (an increase of about 4,300 acre-feet). As Figure 6 shows, during the late 1980's the city's safe yield of supplies does not equal projected demands. At other times the city may have more than enough water. The actual dates when supplemental water will be available and the total quantities to be available cannot be predicted with certainty. If supplemental water is not available or if droughts occur, the city will have to manage demand so requirements do not reach the level projected in the graph.

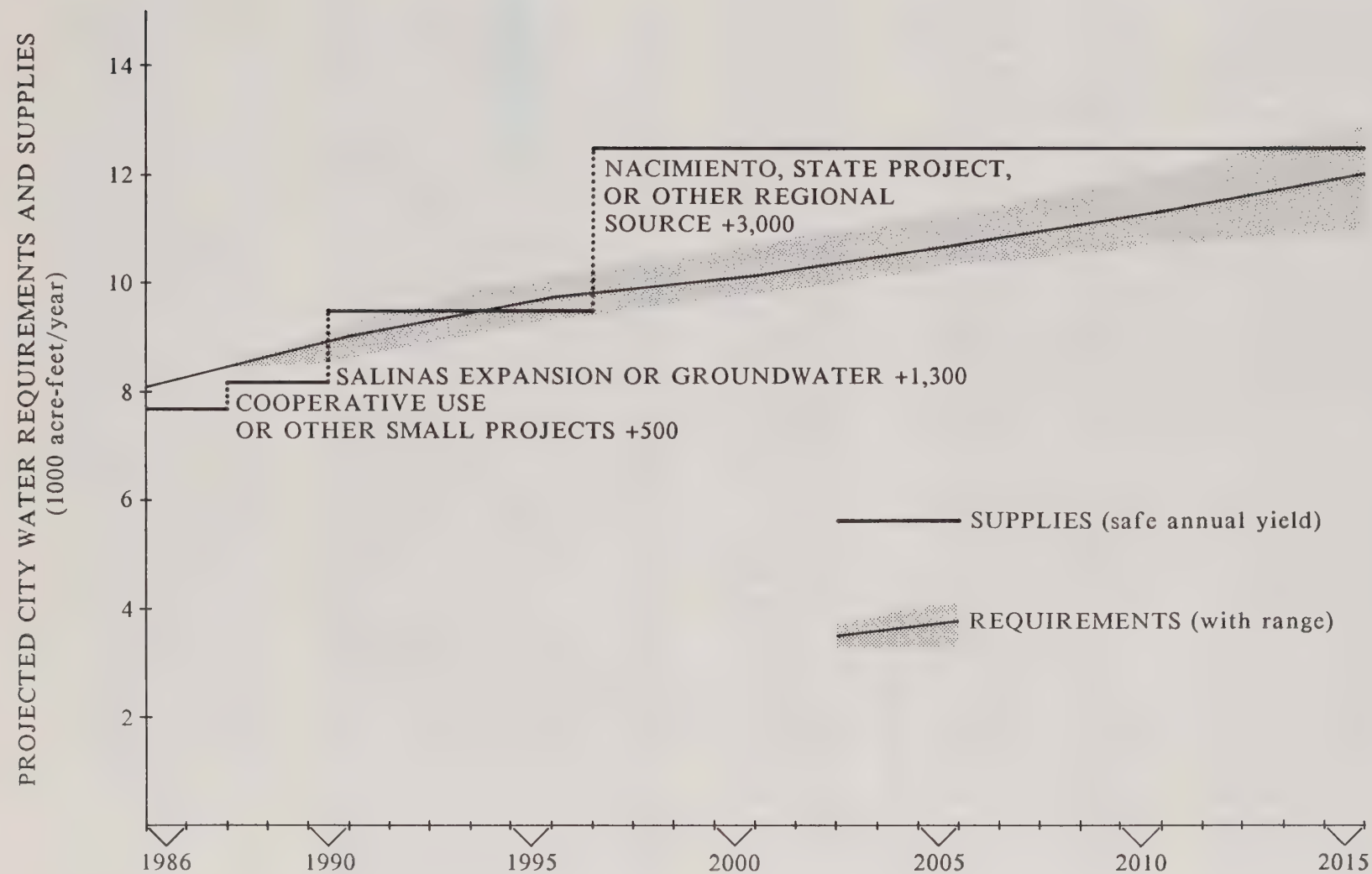
Treatment, Storage, and Distribution

The existing reservoirs generally provide good quality water, though it must be treated to meet health and esthetic standards. The City's water treatment plant in Stenner Canyon purifies the water to meet these drinking-water standards. Compounds are added to help remove sediment and kill bacteria. To further remove impurities, the water flows through carbon filters.

From the treatment plant, water is pumped to tanks on hillsides around the city. From the tanks, it flows through pipes to customers and to fire hydrants. The existing network of pumps, pipes, and tanks determines water pressures (pounds per square inch) and delivery rates (gallons per hour) which can be provided to various areas of the city. The pressures and rates in turn determine how far up the hillsides and how far out development can be served while still meeting city standards for customer convenience and fire safety.

Figure 6

PROJECTED WATER REQUIREMENTS & SUPPLIES



The water distribution system was developed along with the city. The oldest existing pipes date from the early 1900's. While the city has upgraded the system over the years, parts of it do not meet current standards. Some lines do not provide adequate flow to meet modern fire-fighting requirements. The city is divided into several pressure zones, since some neighborhoods are at higher elevations than others. Large, sudden changes in pressure from fire fighting or cycles of daily use along certain water mains and between certain pressure zones can damage the pipes. The city now requires looped pipes to serve new neighborhoods and major developments, so if one pipe breaks water service can be maintained. However, some areas served by only one line have been developed.

Pumps which move water within the system use electricity. Evaluations of possible changes to the system have shown that electricity use and pumping costs could be reduced. The city must decide if the costs of making such changes can be justified by improved service and pumping-cost savings.

The city maintains maps showing the location, size, and type of water lines and fire hydrants and the city uses a computer simulation of the water system to help operate it and to evaluate proposed system changes and development projects.

Water Costs and Revenues

The city budgets its water activities separately from other city services and has a long-standing policy that the water "enterprise" should pay its own way. Those making new connections to the water system pay for their meters and for their share of the cost of developing the existing water system. A water customer is billed according to the diameter of the pipe from the meter and the amount of water used.

In 1986-87, the city water system budget was \$2.76 million. In that year, the average cost for an acre-foot of water was about \$340, or about \$68 per city resident, including all operating, debt-service, and administrative costs.

The supplemental water projects to serve potential development within the urban growth limit and projects to expand the capacity of the treatment, storage, and distribution system as outlined in this element would cost about \$19 million in 1986. Dividing this cost by the additional population which would be accommodated by the increased water supply results in about \$1,300 per person. Dividing this total cost by the total future population results in about \$360 per person. These figures provide a rough comparison of charging water-project costs to new development or to all customers, though they do not imply specific water rate changes or development fees. These figures may change significantly if project descriptions or other assumptions change.

Dealing with Near-term Conditions

City water use has exceeded the safe annual yield of existing supplies since 1984. After a public hearing in November of that year, the City Council decided to:

Continue to monitor water use and reservoir conditions;

Prepare the water management plan that would guide city efforts to conserve water and to obtain more water;

Not restrict water use or real-estate development.

In mid-1987, annual water use was 8,700 acre-feet, about six percent more than the safe yield of 8,180 acre-feet. The city expects that increases in water demand from new development during 1987-88 will be offset by citywide water conservation efforts and possibly new wells for landscape irrigation, so the imbalance between use and safe yield will not grow worse in that year. Although annual changes in water use are related to such variables as the weather and the economy, the continuing trend of increasing total water use has been due primarily to the construction of more houses, apartments, and businesses. As the usual water use exceeds safe yield by greater amounts, the city must cut back water use more frequently and more substantially to avoid running out of water during periods of low rainfall.

The city is seeking several supplemental water supplies which could be available by the early 1990's. However, a major supplemental source of water, such as the coastal branch of the state aqueduct or a distribution system from Nacimiento Reservoir, probably will not be available until the mid to late 1990's (see Figure 6, which shows projected requirements and supplies).

If the city's usual water use did not exceed the safe yield, reductions from usual use would probably never be needed. However, when use exceeds safe yield, cutbacks from usual use may be needed to avoid running out of water. For example, when use exceeds safe yield by ten percent, the city would have to reduce consumption by five percent in about one out of eight years. About once in 25 years it would have to reduce consumption by five percent in one year and by ten percent in the following year. About once in 100 years the city would have to cut back during four consecutive years, about five percent in the first and increasing to about 23 percent in the fourth year. (These estimates are based on evaluations of rainfall records, the storage and refill characteristics of the reservoirs, and observed water-conservation behavior during droughts in San Luis Obispo and other communities.) Alternatively, the city might be able to quickly develop temporary or permanent supplemental supplies, such as groundwater pumping, which could forestall the need for water-use cutbacks.

The estimates of safe yield and required water-use reductions are derived from San Luis Obispo's 115-year record of rainfall, including the six-year dry spell used to determine safe annual yield. A drought longer than six years may occur, though none has been experienced since 1869. Also, while the probability of a six-year drought appears small (once in 115 years), such a drought could begin any year. Less severe droughts are expected to occur more frequently. Table 1 shows how much and how often the city would have to reduce water use to avoid running out of water, if usual use exceeded safe yield by percentages ranges from five to 20.

Table 1

EXCEEDING THE SAFE YIELD - REQUIRED WATER-USE REDUCTIONS

If usual water use exceeds safe annual yield by:	5%	10%	15%	20%
About one year in eight, water use would have to be reduced:	5%	5%	5%	5%
About once in 25 years, water use would have to be reduced two consecutive years and the maximum reduction in one year would have to be about:	5%	10%	15%	20%
About once in 50 years, water use would have to be reduced three consecutive years and the maximum reduction in one year would have to be about:	10%	18%	25%	35%
About once in 100 years, water use would have to be reduced four consecutive years and the maximum reduction in one year would have to be about:	10%	23%	34%	39%

To minimize the risk of having to use less water than usual during times of below-average rainfall, the city would not allow water use to exceed the safe annual yield. Or, it would have standby sources ready to use that would at least temporarily increase total safe yield.

A five percent reduction in water use can usually be achieved by making the public more aware of careful water use, through information efforts or increased rates. A 15 percent reduction would probably require mandatory conservation measures, such as watering only on certain days. A 25 percent reduction would require cutbacks in landscape watering and elimination of some water uses, such as washing cars. A 25 percent reduction is difficult to achieve and maintain.

A 35 percent reduction approaches the levels met by northern California communities during the 1970's drought. This reduction could be achieved by means such as eliminating most landscape irrigation and imposing extra charges for water use over certain amounts. Reductions of 35 percent or more are very difficult to achieve and nearly impossible to maintain for a long time without significant changes in peoples' behavior and in community character.

Appendix B, expanding the information summarized in Table 1, provides estimates of water-use reductions needed during droughts likely to occur at certain intervals. Appendix B shows year-by-year reductions, assuming that the most effective water-saving efforts will not be undertaken until the community has experienced two years of below-average rainfall.

Potential Water Sources

The city has considered many potential sources for more water, summarized below. Some may be pursued as permanent additions to regular city supply, while others may be used only during a drought. The city will continue to investigate the sources described below and to look for other sources.

Conservation.

Eliminating waste and using water more efficiently postpone the need for additional water and reduce the amount which will be needed. In the effort to balance requirements and supply, permanently reducing use from recently accepted patterns by a given amount is just as effective as getting that amount from a new source. (Using low-flow toilets in new buildings or native shrubs rather than lawns around new houses are examples of this type of conservation.) This type of conservation can be seen as a source of supply. Temporary reductions from typical use, as may be achieved during a drought, are not equivalent to actually expanding supply (example: not watering a lawn.) Generally, substantial permanent reductions from previous use make it harder to achieve substantial temporary reductions, since the temporary reductions cut closer and closer to the essential and efficient use levels.

Without major changes in water-use patterns, the city could probably increase water use efficiency by about five percent, saving about 400 acre-feet per year. Substantial changes in water-use patterns, as might be expected during a prolonged drought, could reduce water use by as much as 30 percent, for a savings of about 2,500 acre-feet per year. However, doing so would cause considerable inconvenience and would be difficult to sustain.

The city is trying to increase water conservation by educating customers and providing water-saving devices, and by carefully managing its own water use, especially in parks.

Conjunctive Use

With "conjunctive use," water from Salinas Reservoir would be spread to soak into the ground in areas where the city could pump it out when needed. Or, the city could provide excess reservoir water for farmers in exchange for their agreeing to let the city pump groundwater in dry years. So far, no suitable areas to do this have been located.

Wastewater Reclamation

Much water used by the city carries diluted wastes to the wastewater (sewage) treatment plant, where most harmful substances and bacteria are removed before the water is released into San Luis Obispo Creek. This wastewater flow helps maintain water levels in the creek, and therefore wildlife habitat and groundwater levels for areas downstream. Additional wastewater reuse through farmland or landscape irrigation could occur with suitable treatment and an effluent piping system. While the estimated costs of irrigation reuse appear to exceed the estimated costs of other water sources and of other treatment and disposal approaches, the city is continuing to explore wastewater reuse. (See also the Wastewater Section).

Groundwater

San Luis Obispo used wells until the 1950's, when they were abandoned because reservoir water was of better quality and more reliable. In 1942, the last full year of production, city wells yielded 1,164 acre-feet. Historical yield may not be an accurate basis for estimating current potential yields, which may be lower or higher. The historical yield may not indicate quantities available during a severe drought, when all sources would be most strained. Also, groundwater would have to meet today's quality standards. A few private wells are used within the city, and several wells provide water for crops, houses, and businesses in the surrounding area. However, some areas near the city have groundwater that is unreliable or of such poor quality that it cannot be used even for landscaping.

In 1987, the city is starting a study to determine the feasibility of using groundwater for urban development. The city is installing a test well at the municipal golf course, which may be used to irrigate the golf course, junior high school grounds, and Laguna Lake Park. Well water might be added to the city system during a drought. Wells may be installed at other parks.

Small Streams

The city used to draw water from springs and a small reservoir where Highway 101 approaches Cuesta Grade. The city stopped using the streams because major reservoirs became available and the city did not want to provide the required treatment for the small sources, which was not as cost-effective as a single large treatment plant. The springs and streams might provide 300 acre-feet per year.

Several small streams along the Whale Rock transmission line carry storm flows to the ocean relatively quickly and directly. It may be possible to intercept some of these flows with temporary dams, which would not significantly damage the wildlife habitat, and use the water by way of the existing Whale Rock system. The feasibility of this source is being evaluated.

Expand Salinas Reservoir

The city has explored three ways to raise the Salinas Dam spillway so the reservoir could store and yield more water (from 450 to 1,350 acre-feet per year). The city is trying to resolve water-rights, earthquake-safety, and environmental issues.

Regional Projects

The city has told the county that the city tentatively would desire 3,000 acre-feet from a regional water project, which could be one or more of these sources:

New reservoirs, which could be built on streams within the county, such as Santa Rita Creek west of Templeton, or on the Salinas River between the existing Salinas Reservoir and Atascadero (Cantera Reservoir). The city and other agencies participating in the project would have to obtain water rights. Engineers have estimated that a new Santa Rita reservoir could yield from 3,000 to 6,000 acre-feet per year, while a Cantera reservoir could yield about 4,600 acre-feet per year.

Nacimiento Reservoir, owned by Monterey County, where San Luis Obispo County has an entitlement to 17,500 acre-feet. If San Luis Obispo helped pay for a delivery system to bring water to the city, it could have some of this water.

State Water Project, for which San Luis Obispo County has an entitlement to 25,000 acre-feet of water. The State Aqueduct brings water from the northern and central Sierras to the San Joaquin Valley and Southern California. If the county decides to obtain its entitlement, the Coastal Branch of the aqueduct would be built from the west side of the San Joaquin Valley to northern Santa Barbara County, with branches to serve communities in San Luis Obispo County.

Desalination

In 1972, the United States Department of the Interior prepared a draft environmental impact statement for a desalting project at the Diablo Canyon nuclear power plant. The project was not pursued because it did not appear to be an economical source, and the federal and state governments did not support a subsidized demonstration project. Desalination still appears less cost-effective than other sources, even for coastal cities.

Preventing siltation

If the city prevented silt from reducing the yields of existing reservoirs, the need for additional water could be reduced accordingly. Siltation can be prevented by providing erosion-control planting and by minimizing disturbances to natural vegetation (due to fire, road building, or excessive livestock grazing). Also, small dams can be built on tributary streams to catch sediment before it enters the reservoir. The silt must then be removed from the catch basins. Silt can be dredged from reservoirs. Preliminary studies indicate that silt dams and dredging are less cost-effective than developing some of the new sources which have been considered.

GOAL, POLICIES, and PROGRAMS

A goal is a desirable condition which the city will attempt to reach or maintain over the long term. This element looks ahead about 30 years in assessing water conditions and proposing programs.

San Luis Obispo's water goal is to provide a sufficient quantity of appropriate-quality water for the needs of the community.

Policies are statements of city intent. They guide actions and decisions. A program is a definite course of action to be carried out by certain people or agencies within a specific time, often with a funding commitment.

San Luis Obispo's policies and programs regarding water supply and delivery are the following.

1. Service Area and Population

Policy 1.1 The current water-delivery service area is the incorporated area of the city. The city shall provide water service adequate for existing uses and new development pursuant to the Land Use Element for all areas within the city limits.

Policy 1.2 The urban reserve line (the outer limit to urban development) includes areas which the city may annex in the future. Water service adequate for potential uses allowed by the Land Use Element (including hillside planning provisions) shall be provided for all areas within the urban reserve line.

Policy 1.3 To receive city water service, areas must be annexed to the city. The city will not provide water service for areas outside the city limit, except for:

Customers which have prior agreements.

Uses which are consistent with the general plan and which are located on areas of less than one acre, which are surrounded on at least three sides by areas that are already served.

Policy 1.4 The city will not provide water service to areas outside the urban reserve line, except as it may decide to share Whale Rock water supplies with Cuesta College. (The city should, however, cooperate with other agencies in developing water resources and regional water distribution systems. Agencies with which the city may cooperate include the San Luis Obispo County Flood Control and Water Conservation District, Cal Poly, Cuesta Community College, California Men's Colony, and other cities.)

- Policy 1.5 The city should not provide nor permit delivery of city water service to areas beyond reliable gravity-flow or pressure systems maintained by the city (elevations vary depending on location).
- Policy 1.6 Special districts or water companies should not provide water service within the city's planning area (the San Luis Obispo Creek watershed above Davenport Creek) to uses inconsistent with the city's general plan.
- Policy 1.7 The city's water sources and treatment, storage, and distribution systems must be able to support population and related service demands consistent with general-plan objectives. These basic objectives are stated in the Land Use Element (growth management) and in the Housing Element.

The city will pursue sources of supplemental water to serve the land uses and rates of growth outlined in the general plan, with a reasonable margin for error in projections. The city shall, by separate agreement, provide Cuesta College with an annual supply of water consistent with the availability of existing sources.

A. Nonresidential development.

Water demands of nonresidential development are included in the estimated demands of residential development (population). In aiming for (1) a closer balance between jobs or college enrollment and housing and (2) minimum growth inducement, the city does not anticipate or support substantial increases in nonresidential uses in relation to residential uses. However, to more accurately estimate potential water demands as this element is updated, the city will prepare water-use estimates based on specific residential and nonresidential land-use categories and the areas allocated to those uses on the Land Use Element map.

B. Residential development

Until more detailed estimates of water requirements for land-use categories are prepared, projections of citywide water requirements will be based on the residential capacity and maximum population growth rates of the Land Use Element, and the expected average water use per resident. The following population projection is consistent with the Land Use Element policies:

<u>Year</u>	<u>City Population</u> (January of indicated year)
1985	37,400 (state estimate)
1990	41,300
1995	43,400
2000	45,600 (approximate maximum 1987 city limits capacity)
2005	47,900
2010	50,400
2015	53,000 (approximate 1987 urban reserve capacity)

(See Figure 6 for a corresponding projection of water demand.)

- Policy 1.8 The city will not annex an area unless the safe annual yield of available citywide water supplies at least equals estimated water requirements for all development, consistent with the Land Use Element, within the city including the annexed area. The only exceptions to this policy are:
- A. Areas which have prior agreements for water service.
 - B. Minor infill parcels within areas which have prior agreements for water service, as provided in policy 1.3.
 - C. Areas which provide their own water from groundwater sources, as provided in policy 3.4.
- Program 1.1 The city will update this element's service area description and population projections as needed and in concert with any amendments to the Land Use Element.
- Time frame: continuing
- Responsible parties: Community Development Department; Planning Commission, City Council.
- Funding: City general fund
- Program 1.2 The city will refine this element's projections of water requirements on the basis of water use by specific land use categories and the likely development of those categories as provided in the Land Use Element.
- Time frame: Following adoption of the Land Use Element update (tentatively, by 1989).
- Responsible parties: Community Development Department; Public Works department; Planning Commission; City Council.
- Funding: City general fund.

2. Water Use and Conservation

Policy 2.1 Water will be used as efficiently as is practical.

Policy 2.2 The city will manage water demand to assure that it can continue to provide a high level of water service. Controlling the number and type of new customers through land-development review is the long-term aspect of this management. The short-term aspect is controlling water use by existing customers through the operational plan, which responds to current demand and reservoir conditions.

Policy 2.3 The city will not allow land development to cause total city water use to exceed the safe annual yield by a factor which would lead to an unacceptable level of risk that the city could not provide adequate water service. This assessment of risk and service will consider water use factors and trends, reservoir status, and the likely availability of supplemental water. Total city water use (including Cuesta College use of Whale Rock Water) should not exceed the total safe yield by more than 13 percent. When total water use exceeds safe yield by ten to 13 percent, the full safe yield of any supplemental sources obtained will be allocated to reducing the amount by which current use exceeds safe yield. When total water use exceeds safe yield by less than ten percent, one-half the safe yield of any supplemental supplies obtained will be allocated to support additional development and one-half will be allocated to reducing the amount by which current use exceeds safe yield.

In long-term planning for supplemental water supplies, projected water use should not exceed safe yield.

Program 2.4 (Figure 7) translates these policies into specific criteria for deciding, on a yearly basis, what controls should be placed on development in order to manage water demand.

Policy 2.4 When building entitlements must be limited to avoid excessive increases in water use, water supply should be allocated to new development according to a system which provides for balanced growth consistent with other general plan elements and adopted policies. The allocation system will establish: an acceptable annual increment of growth in water demand; the proportion of acceptable water-demand growth which will be available to each land-use category; a ranking system which, within each category, gives highest priority to those projects which best meet general plan objectives. Except for the guidance of this policy, the proportions of water-demand growth available to various land-use categories and the criteria for ranking projects may be adjusted annually.

The system will allocate water to categories such as residential, commercial, and government and public. Residential uses will be allocated at least 66 percent of total water capacity to be allocated. Within the residential category, projects affordable to low- or moderate-income households will have highest priority.

The allocation system will assure that: (1) no single project can receive a year's whole allocation for a certain use category; (2) a project which reduces water use in existing development by at least twice the expected water use in the proposed project may proceed independently from the allocation system.

The allocation system will take priority over and may replace any regulations or specific-plan provisions concerning growth management.

Program 2.1 The city will adopt and enforce standards for water-use efficiency in fixtures and appliances in new and remodeled buildings. The standards will at least equal those of the state of California and will reflect best prevailing designs.

Time frame: Continuing

Responsible agencies: Community Development Department; Public Works Department; City Council

Funding: General fund

Program 2.2 The city will develop and apply landscape planting and irrigation guidelines for frugal water use. The guidelines will incorporate local climate and soils conditions and the availability of water-saving equipment and practices and native and naturalized plants.

Time frame: Guidelines available by January 1988

Responsible agencies: Community Development Department; Public Works Department; Architectural Review Commission

Funding: General fund

Program 2.3 The city will continue to establish specific conservation objectives and activities related to water availability and use in the annual water operations plan. When projected annual water use increases as a percentage of water available in reservoirs, progressively more effective water conserving measures will be implemented. Likely activities during the 1985 - 1990 period include: monitoring landscape irrigation for runoff, with penalties for waste; retrofitting existing buildings with water-saving fixtures; water-use audits and mandatory conservation plans for major water users; water rate changes.

Time frame: Continuing

Responsible agencies: Community Development Department; Public Works Department; City Council

Funding: General fund

Program 2.4 To prevent development from jeopardizing water service when supplies are not adequate, the city will adopt an ordinance which controls increases in water use by limiting new development and changes in land use. As outlined in policies 2.3 and 2.4 (Figure 7), depending on the severity of the water shortage, the ordinance could prevent construction or changes in building occupancy which would increase water use. Also, as the maximum acceptable level of risk in providing adequate water for the community is reached, the ordinance would allocate the remaining increment of water use to projects which best meet city goals, rather than providing additional water service strictly on a first-come, first-served basis. So long as water use exceeds safe yield, the ordinance would allocate only part of any increased supplies to new development, and the rest to reducing the disparity between safe yield and consumption, so eventually water use would again be within safe yield of supplies.

Time frame: Procedure in effect by February 1988

Responsible agencies: Community Development Department; Public Works Department; City Attorney; Planning Commission; City Council

Funding: General fund

3. Water Supplies: Supplemental Sources

Policy 3.1 In deciding appropriate sources of supplemental water, the city will evaluate impacts on other users of the water and other environmental impacts, total and unit costs, reliability, water quality, development time, and quantity available.

Policy 3.2 All potential supply alternatives will be explored. City efforts to provide supplemental water supplies will generally follow the priorities below. While the city has taken some action on a range of potential sources, it cannot pursue each potential source with equal effort. The priorities are intended to focus city efforts on those sources which will: (1) be able to supply water earlier even though the amounts are relatively modest; (2) require the least capital funding; (3) cause the least environmental impact, in terms of both the project sites and commitment to growth-inducing resource expansions; (4) offer the most city control. The order indicates general priorities, not a strict sequence.

More efficient use of existing supplies (conservation);
More complete use of sources already used by the city;
Development or reactivation of sources in and near the city;
Development of other new sources within San Luis Obispo County;
Development of new sources outside San Luis Obispo County.

Policy 3.3 The city will not compete with local agricultural use of groundwater or damage wildlife habitat through reduced stream flows in obtaining long-term sources of supply.

Figure 7

WATER SITUATION & RESPONSE

In May of each year, the City Council evaluates water supplies, water use, and prospective supplemental sources. The indicated development control level begins in July.

WATER SUPPLY AND USE	STATUS OF RESERVOIRS & SUPPLEMENTAL SOURCES	DEVELOPMENT CONTROL
Relationship of water use, total current supplies, and supplies added since 1986.	Reservoirs hold enough water to meet projected requirements for four years, or until definitely scheduled supplemental source(s) would make total use a smaller percentage of total supply than in the year being evaluated.	Building permits are limited through the allocation system so annual water use will increase no more than this percentage of total supply:
Total use does not exceed total supply.		No limit (except as otherwise required by general plan or ordinance)
Total use exceeds total supply, but total use does not exceed 8,448 plus 1/2 of yield added since 1986.	yes no	two percent one percent
Total use exceeds total supply and total use also exceeds 8,448 plus 1/2 of yield added since 1986, but one-half of supply added since 1986 plus total use do not exceed 8,678:		one percent
Total use exceeds total supply and total use also exceeds 8,448 plus 1/2 of yield added since 1986, and one-half of supply added since 1986 plus total use do exceed 8,678:		zero percent

Notes:

All water use and supply quantities are in acre-feet per year.

Total use means the quantity of water processed through the city water treatment plant, including sales to Cal Poly, plus Cuesta College use of Whale Rock water. It is to be projected for the following year (July 1 to June 30). The projections may employ a baseline amount plus additions for water use due to new development, rather than a computation using only the current year's measured water use. (The baseline approach is to avoid incorporating short-term fluctuations due to changing weather, water-use restrictions, and economic conditions. The baseline may be revised in response to

changed long-term conditions by resolution of the city council, without amending this element.)

Total supply means the combined safe yield of all sources actually providing water to the city when the evaluation is conducted (the 1986 total supply plus any supplies added since 1986).

Referring to the quantities:

7,680 is the total supply in 1986;
8,448 is 110% of the 1986 total supply;
8,678 is 113% of the 1986 total supply.

- Policy 3.4 The city does not encourage but may consider wells to provide domestic water for a private development within the city. Such a well may be operated by the project owner only for the owner's use. If the well serves any user in addition to the project owner, it must be operated by the city (Policy 5.1) Such wells may be used only when:
- A. The city has at least completed environmental review and authorized preparing plans for a water-supply project or projects which would provide the safe annual yield needed to support potential land development within the city limits, including the proposed land-development project;
 - B. The City Council approves the well proposal as part of a specific land-development project approval, and the proposed well system meets all city standards;
 - C. A qualified, independent hydrological investigation demonstrates that the well(s) reliably can provide sufficient quality and quantity of water for the proposed land-development project.
 - D. The owner or developer financially guarantees any treatment system required for the well water to meet state and federal standards and any cost of future connection to the city water system. (Users of the well water would bear additional costs of treatment.)
 - E. The well-water distribution system or a separate system is designed and constructed, or a separate system is provided, to eventually be connected to the city water system.
- Policy 3.5 The city encourages frugal use of on-site well water within the city for uses such as construction or landscape irrigation.
- Policy 3.6 Installation of any well within the city shall be subject to city approval.

- Program 3.1 The City will pursue the following water sources. Specific steps to prepare feasibility studies, environmental documents, financing programs, and designs will be spelled out in the city's five-year capital facilities plan and two-year budgets. Because some sources outlined below will require more evaluation or the cooperation of other agencies, a schedule of water availability cannot be assured (Figure 6). The following priority listing of potential projects is intended to focus city efforts consistent with policy 3.2.
1. Conservation measures to reduce long-term increases in water use;
 2. Developing wells for irrigation of the municipal golf course and other city parks or school grounds and exploring installation or reactivation of wells for domestic uses;
 3. Reactivating unused wells, springs, or small reservoirs for use in prolonged droughts;
 4. Developing new, small stream diversions whose flows could be processed through existing reservoirs and treatment facilities;
 5. Enlarging Santa Margarita Reservoir by raising Salinas Dam spillway;
 6. Participating with the county or other agencies in a regional source, such as Nacimiento Reservoir connection or Coastal Branch of the State Water Project.
- Time frame: 1986 through mid 1990's.
- Responsible parties: City staff, City Council, Whale Rock Commission, San Luis Obispo County and other agencies delivering water within the county.
- Funding: Contributions from owners/developers of expansion areas, connection fees for new development, and water rate increases.
- Program 3.2 The city will by ordinance establish permit requirements and standards for private wells.
- Time frame: Provisions adopted by January, 1988. If the city cannot prepare and adopt its own requirements by this date, it will adopt the County of San Luis Obispo requirements as an interim measure.
- Responsible parties: Public Works Department; Community Development Department; City Council
- Funding: City general fund.

4. Water Quality

Policy 4.1 Water quality will be appropriate for the intended use.

Program 4.1 The city will continue to treat water to meet state and federal standards. Operational improvements to maintain treatment quality and increase reliability will be programmed in the city's capital facilities plan. Precise project scheduling and operating procedures will be described in the annual water operations plan.

Time frame: continuing

Responsible parties: Public Works Department; City Council

Funding: Water operations revenues; development fees.

5. Water Treatment, Storage, and Distribution

Policy 5.1 The city will be the only purveyor of water within the city.

Policy 5.2 The city's water treatment, storage, and distribution system will be able to reliably and economically meet peak citywide demands and demands from subareas of the city, including normal operations, emergencies, and fire flows. The system should be designed to enable service for uses consistent with the general plan, within the urban reserve.

Policy 5.3 Water operations will minimize energy use and will incorporate all cost-effective energy production facilities.

Program 5.1 The city will continue to monitor its treatment, storage, and distribution system to identify potential improvements and deficiencies triggered by development. Cost-effective improvements will be programmed in the city's capital budget.

Time frame: continuing

Responsible agencies: Public Works Department; City Council

Funding: Water operations revenues; development fees.

6. Water Revenues and Financing

Policy 6.1 The city's water system will be operated as an enterprise activity, with costs to be borne by water fees and charges. Costs of operating, maintaining, and replacing the water system will be borne by all customers. Costs of developing supplemental sources and of expanding the water system to serve new development shall be borne primarily by those making new connections to the system, in proportion to expected water use. Some portion of the cost --such as investigation, environmental review, project selection, and design-- for large-scale, long-term supplies may be borne by the whole community. Programs to fund supplemental water projects should be consistent with the growth management policies of the general plan.

Cuesta College will pay the city's costs for any water it receives from the city.

Program 6.1 The city will maintain and periodically revise its schedule of charges for water service. The city will prepare a development fee schedule to fund supplemental water projects and related expansion of the treatment, storage, and distribution system.

Time frame: Annual water rate evaluation; development fees to be adopted by July 1988 and updated as required.

Responsible parties: City staff; City Council.

WASTEWATER SECTION



At the city's wastewater treatment plant at Prado Road and Highway 101, micro-organisms in these filters help remove contaminants.

INFORMATION

Background

The city is responsible for collecting, treating, and disposing of wastewater from about 19,000 residential, commercial, industrial, and public customers every day, in a way that avoids environmental and public health problems. In addition to homes and businesses within the city limits, the city provides wastewater services for Cal Poly and the county airport (Figure 8).

Current Wastewater Flows and Treatment

The city's existing wastewater collection system partly determines the character of wastewater flows. About 150 miles of sewer pipes, ranging from six to 30 inches in diameter, collect wastewater flows. The oldest pipes date from the 1890's, when pipe materials and trenches were less able to withstand the effects of corrosion and soil settlement. Eight pumping stations move the wastewater from areas where the slope of sewer pipes is not sufficient to allow gravity flow. Sewer lines cross creeks at 95 locations in the city; at some locations, syphons (U-shaped sections of pipe) allow the flows to continue. In some places, newer pipes have been installed parallel to older pipes to handle increased flows.

Despite the city's efforts to repair and replace older and deteriorated sewer pipes, some cracked joints between pipe sections, some manhole covers, and improperly connected storm-water drains allow water from rainfall and saturated ground to enter the sewage collection system. This storm-water infiltration significantly increases the amount of wastewater which must be treated during the wet season. Undersized and damaged lines, syphons, and parallel pipes are often the source of wastewater collection problems.

Collected flows are treated at the city's plant on Prado Road near Highway 101. The plant removes floating and large, gritty material, reduces the amount of nutrients and bacteria, separates sludge from the waste stream, and discharges the effluent into San Luis Obispo Creek near Los Osos Valley Road. Sludge is separated from the wastewater, dried in open ponds at the treatment plant, and hauled away for use on landscaping or crops. While the treatment plant uses tanks, pumps, and other mechanical equipment, most of the wastewater treatment is actually done by living microorganisms. The man-made features are largely to provide a suitable place for them to grow.

Wastewater flows are measured in millions of gallons per day --abbreviated "mgd." (One million gallons would fill a tank 60 feet in diameter and 50 feet high.) In 1986, the average flow into the treatment plant during dry weather was 4.4 mgd. During wet weather, the peak flow was 22.4 mgd.

Standards for quality of the treated effluent follow from federal and state water-quality laws. The specific requirements for San Luis Obispo were most recently set by the state's Regional Water Quality Control Board in April 1986. The standards are to protect present and potential beneficial uses of the water which receives the effluent, including recreation, agricultural supply, and fish and wildlife habitat.

The standards include:

For the creek - maximum allowed changes in acidity/alkalinity, temperature, and oxygen;

For the effluent - maximum allowed quantities of solid particles and dissolved solids, nutrients which deprive the water of oxygen through chemical and biological action, oil and grease, coliform bacteria, and chlorine left from the last treatment step.

Effluent quality has violated the standards, so the Regional Water Quality Control Board has ordered the city to improve the effectiveness of its treatment. The primary problem has been the amount of nitrogen in the form of ammonia. Other nutrients, suspended solids, oil and grease, and coliform bacteria have also exceeded the standards.

Projected Wastewater Flows

If the city grows to about 53,000 population in the year 2015, as outlined in the Land Use Element, the average dry-weather volume of wastewater is expected to increase by about 32 percent, from 4.4 mgd to 5.8 mgd. Other measures of required treatment capacity, such as flow in the peak month and the amount of nutrients and solids, are expected to increase in about the same proportion.

Consulting engineers have concluded that the existing wastewater treatment plant site is big enough for a plant to handle the projected flows, but the treatment plant will have to be changed to treat such flows effectively. The city plans a two-phased expansion of treatment capacity. The first phase would also improve the effectiveness of treatment. Both phases involve changing and enlarging certain facilities at the treatment plant

Alternative Treatment and Disposal Methods

Many different methods of disposing of treated wastewater (effluent) have been considered. Each method has its own advantages and disadvantages. In evaluating treatment and disposal methods, the city will consider initial and continuing costs, environmental impacts, reliability, flexibility, and potential for increasing beneficial uses of treated wastewater. Preliminary evaluations have indicated that some of the options listed below are not feasible or cost-effective. The feasibility and desirability of others will not be known until additional evaluations are completed, and even then changing conditions may warrant reconsideration or further study.

The city does not want to preclude treatment and disposal options which may turn out to be feasible. However, the city must select an overall strategy for treatment and disposal and begin to carry it out, in order to meet established water-quality standards. Once a strategy is chosen and money is committed to certain physical projects, those funds would not be available to spend on significantly different strategies.

Several alternatives to conventional stream disposal, which could be used in various combinations, are briefly described below. With the exception of an ocean outfall, each alternative involves some beneficial use --reclamation-- of the treated wastewater, as does direct stream disposal (which helps maintain stream habitat and recharges downstream wells). Reclaiming all the effluent for uses that would otherwise need fresh city water, which is not likely in the time frame of this element, would displace the need for about 5,000 acre-feet of water in 1987, and about 6,600 acre-feet in 2015.

Irrigation

Effluent could be used to irrigate recreational land (such as a golf course) or agricultural land. Effluent used for pasture irrigation would probably not have to meet standards as high as those for creek disposal. However, to dispose of all projected effluent quantities during all seasons, the city would have to own or permanently control the use of about 2,000 acres of land. Even with availability of such a large area for irrigation, a substantial holding pond would be required for winter storage, when the ground is saturated. The main obstacles to this approach are obtaining the required disposal area, piping the effluent to it, and assuring no long-term harm to soil characteristics or groundwater supplies. Effluent used to irrigate landscaping or recreational land could replace water from other sources, or it could enable expansion of landscaped or recreational areas without drawing on limited supplies of fresh water.

Stream Improvement

The creek's ability to provide good wildlife habitat can be improved in ways other than removing certain contaminants from the effluent. Effluent, possibly with more nutrients or discoloring substances than now allowed, could be discharged at several points within an enlarged streamside forest. Additional streamside trees and plants (a riparian corridor) would help remove nutrients. They would also shade the water, and could therefore help keep it cooler. Along with using such natural treatment capacity, the city could restore some of the habitat downstream from the treatment plant, which has been harmed by vegetation removal and intensive livestock use. The city's improving the habitat might allow relaxation of some discharge standards, since creation of a riparian corridor would enhance a beneficial use which the Regional Water Quality Control Board is trying to protect.

Groundwater recharge

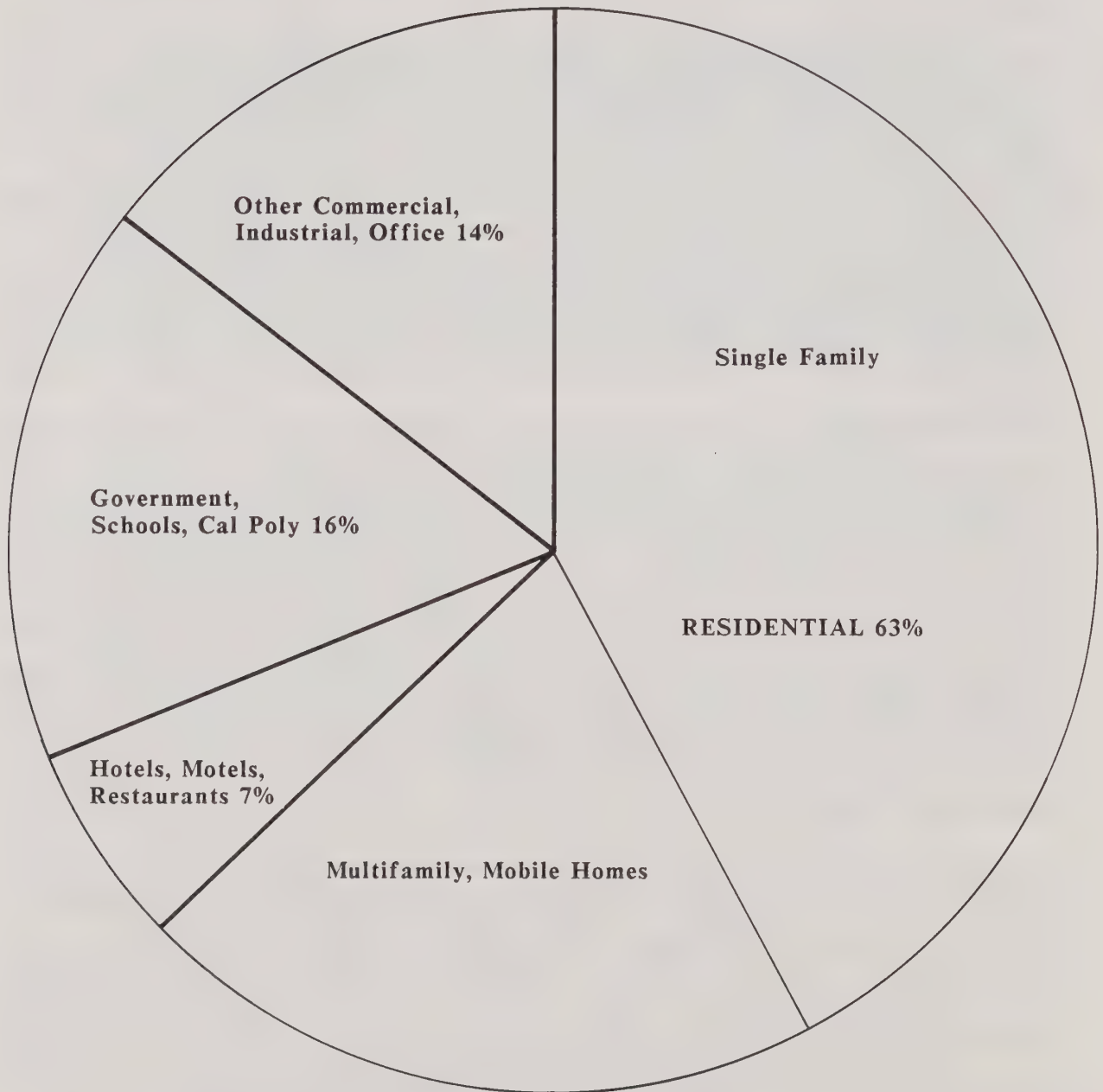
If suitable areas could be found and used by the city, effluent could be deliberately spread to percolate into the ground to recharge aquifers. While stream disposal does this for some downstream areas, disposal at other locations might allow more of the water to be retained where it could be withdrawn efficiently for use by the city.

Laguna Lake or marsh

Effluent could be used to maintain a fairly constant level of Laguna Lake year-round. Much of the effluent would still make its way to San Luis Obispo Creek. If the effluent entered the lake directly, the required level of treatment would exceed that for direct stream disposal, since the lake is used for water-contact sports. Discharging the effluent into the marsh at the northerly end of the lake, or as pasture or landscape irrigation, would allow some natural filtering and might require a lower level of treatment than direct stream disposal.

Figure 8

WASTEWATER SOURCES
1985-86 Average dry-weather flow



Source: Brown & Caldwell

Industrial reuse

Some industries use large quantities of water that need not be of drinking quality. San Luis Obispo does not have significant manufacturing or processing industry, though it does have some businesses, such as laundries, which might be able to use properly treated effluent. Such effluent as a source of water also might enable industries that could not otherwise locate in San Luis Obispo to do so.

Aquaculture

Sewage is basically heavily fertilized water. If proper growth conditions are provided and harmful substances are controlled, the water-borne nutrients can be converted to useful plants and animals through aquaculture. Water hyacinth (used to produce methane, soil conditioner, or livestock feed) and several varieties of fish have been produced in municipal wastewater treatment plants. Difficulties with this approach include finding and maintaining markets for the products and continuously providing acceptable levels of treatment with widely varying wastewater flows and weather conditions.

Domestic reuse

With substantially higher levels of treatment than now used and a suitable distribution system, wastewater could provide for the full range of household uses. However, meeting state and federal standards for quality of drinking water would be very difficult. The costs of adequate treatment and distribution, even for household landscape irrigation, far exceed other alternatives and are expected to be prohibitive for the foreseeable future.

Ocean Outfall

Coastal communities dispose of their effluent in the ocean. San Luis Obispo could pipe its treated effluent to San Luis Bay. However, the costs of building and maintaining a pipeline to the ocean appear greater than the savings that might be achieved through meeting the somewhat lower effluent standards for ocean disposal. Coastal Commission approval would be required for an ocean outfall.

Wastewater Costs and Revenues

The city budgets its wastewater activities separately from other city services and has a long-standing policy that wastewater revenues should fully fund wastewater services. Those making new connections to the sewer system pay for some of the cost of developing the existing system. Residential customers and most small businesses are billed at a uniform monthly rate, while some larger businesses pay according to the amount of water they use. In 1986-87, the city sewer system budget was \$1.1 million.

To fund anticipated treatment-plant and collection-system changes through the 1990's, the city probably will need to substantially increase sewer rates, even with federal grant funding. Also, federal rules may require the city to revise its rate structure, so users are charged according to the average and peak quantities and concentration of contaminants of the wastewater they produce.

GOAL, POLICIES, AND PROGRAMS

San Luis Obispo's wastewater goal is to provide efficient and environmentally acceptable wastewater disposal service for the community.

San Luis Obispo's policies and programs regarding wastewater service are the following.

1. Service Area and Population

- Policy 1.1 The current wastewater service area is the incorporated area of the city. The city shall provide wastewater service adequate for existing uses and new development pursuant to the Land Use Element for all areas within the city limits.
- Policy 1.2 The urban reserve line (the outer limit to urban development) includes areas which the city may annex in the future. Wastewater service adequate for potential uses allowed by the Land Use Element (including hillside planning provisions) shall be provided for all areas within the urban reserve line.
- Policy 1.3 To receive city wastewater service, areas must be annexed to the city. The city will not provide wastewater service for areas outside the city limit, except for:
- Customers which have prior agreements.
- Uses which are consistent with the general plan and which are located on areas of less than one acre, which are surrounded on at least three sides by areas that are already served.
- Policy 1.4 The city will not provide wastewater service to areas outside the urban reserve line.
- Policy 1.5 Special districts should not provide wastewater service within the city's planning area (the San Luis Obispo Creek watershed above Davenport Creek) to uses inconsistent with the city's general plan.
- Policy 1.6 The city's wastewater collection and treatment systems must be able to support population and related service demands consistent with general-plan objectives. These basic objectives are stated in the Land Use Element (growth management) and in the Housing Element. (See Water Section policy 1.7 for population projections which are the basis for wastewater service projections.)
- Policy 1.7 The city will not annex an area unless it can meet the wastewater treatment needs of the area to be annexed, in addition to the wastewater treatment requirements for all development, consistent with the Land Use Element, within the city including the annexed area. The only exceptions to this policy are:
- A. Areas which have prior agreements for wastewater service.
- B. Minor infill parcels within areas which have prior agreements for wastewater service, as provided in policy 1.3.

- Program 1.1 The city will update this element's service area description and population projections as needed and in concert with any amendments to the Land Use Element.
- Time frame: continuing
- Responsible parties: Community Development Department; Planning Commission, City Council.
- Funding: City general fund
-
- Program 1.2 The city will refine this element's projections of wastewater treatment requirements on the basis of wastewater flows from specific land use categories and the likely development of those categories as provided in the Land Use Element.
- Time frame: Following adoption of the Land Use Element update (tentatively, by 1989).
- Responsible parties: Community Development Department; Public Works Department; Planning Commission; City Council.
- Funding: City general fund.
-
- Program 1.3 The city will expand the capacity of the wastewater treatment plant to provide adequate treatment for projected wastewater flows.
- Time frame: Late 1980's to late 1990's.
- Responsible parties: Public Works Department; City Council.
- Funding: Development and connection charges, wastewater fees, and grants.

2. Wastewater Collection, Treatment, and Disposal

Policy 2.1 The city will minimize stormwater infiltration into the sewer system.

Policy 2.2 The city will minimize damage to the wastewater collection and treatment systems by preventing discharge of materials that are toxic or which would obstruct flows.

Policy 2.3 The city will manage wastewater treatment demand to assure that it can provide a high level of wastewater service.

Policy 2.4 The city will pursue treatment and disposal methods which, to the maximum extent feasible, provide for further beneficial use of wastewater and allow beneficial uses of land or water receiving the effluent.

Policy 2.5 The city will be the only provider of public wastewater treatment within the city (but on-site pretreatment of wastewater to meet city standards may be required).

Policy 2.6 Wastewater operations will minimize energy use and will incorporate cost-effective energy recovery or production facilities.

Program 2.1 The city will continue to investigate and carryout cost-effective methods for reducing stormwater flows into the wastewater system.

Time frame: Continuing

Responsible agencies: Public Works Department; City Council

Funding: Wastewater revenues

Program 2.2 The city will update and enforce its standards for the quality of wastewater discharged to the system.

Time frame: Continuing

Responsible agencies: Public Works Department; City Council

Funding: Wastewater revenues

Program 2.3 The city will continue to evaluate the potential for the wastewater flows of a proposed project to exceed the capacity of collection and treatment systems.

Time frame: Continuing

Responsible agencies: Public Works Department; Community Development Department; City Council

Funding: General fund

Program 2.4 The city will change its treatment and disposal practices in an attempt to meet federal and state water-quality standards. The first step will be adoption of the Wastewater Management Plan and completion of pre-design technical reports that will describe a specific strategy for treatment and disposal. Any additional required environmental review would be integrated with the pre-design work. Then, plans and specifications, and a budget, for the construction project would be prepared. The timing of these steps will be worked out in collaboration with the Regional Water Quality Control Board.

Time frame: Construction complete in the early 1990's

Responsible agencies: Public Works Department; City Council

Funding: Wastewater revenues; state or federal grants

3. Wastewater Revenues and Financing

Policy 3.1 The city's wastewater system will be operated as an enterprise activity, with costs to be borne by wastewater fees and charges. Costs of operating, maintaining, and replacing the wastewater system will be borne by all customers. Some portion of the costs of making major decisions about the wastewater systems --such as evaluating changes to citywide collection and treatment-- may be borne by the whole community. Costs of expanding treatment capacity and extending the collection system to serve new development shall be borne by those making new connections to the system, in proportion to expected wastewater flows. The city will seek any state or federal grants which may be available to fund sewer system improvements. Programs to fund wastewater projects should be consistent with the growth management policies of the general plan.

Program 3.1 The city will periodically revise its schedule of charges for wastewater service. The city will prepare a development fee schedule to fund expansion of collection and treatment facilities.

Time frame: Periodic rate evaluation; development fees to be adopted by July 1988 and updated as required.

Responsible parties: City staff; City Council.

APPENDIX A PREVIOUS STUDIES

Water

Report on Master Water and Sewerage Plan, May 1972, CDM, Inc., for County of San Luis Obispo.

Water Supply Background Information, March 1974, Ad Hoc Task Force on Resource Inventory for City of San Luis Obispo.

Proposed General Plan Revision - Part One: Resource Inventory and Interpretations, and Part Two: Growth Alternatives and Evaluations, 1976, Community Development Department for City of San Luis Obispo.

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APPENDIX B DROUGHT SCENARIOS

This illustration relates the extent by which city water use exceeds the safe annual yield of its supplies (five to twenty percent), the expected frequency of droughts of certain durations (three to six years), and the amount of reduction from usual water use which would be required each year of the drought to avoid running out of water.

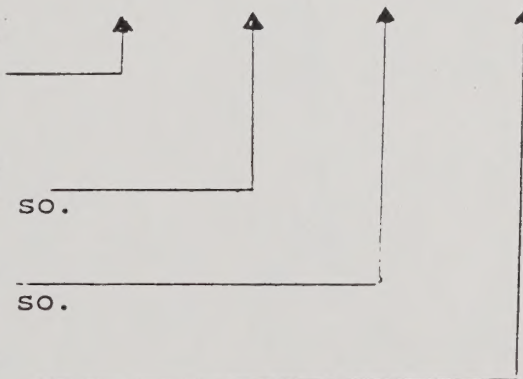
Excess over safe annual yield	Estimated reduction from usual water use					
	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6
5%	0	0	-5%	-5%	-10%	-10%
10%	0	0	-5%	-10%	-18%	-23%
15%	0	0	-5%	-15%	-25%	-34%
20%	0	0	-5%	-20%	-35%	-39%

These situations could occur
as frequently as once every
8 years or so.

These situations could occur
about once every 25 years or so.

These situations could occur
about once every 50 years or so.

These situations could occur
about once every 100 years or so.



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